CLAIMS

1. A tire characteristic monitoring method for reducing interference in a tire monitor system, the method comprising:

at a remotely located exciter, using a primary coil energized with a relatively low frequency signal having a frequency below 3 MHz to energize a secondary coil of a tire monitor associated with a tire of a vehicle;

at the tire monitor, in response to the secondary coil being energized, transmitting a relatively high frequency signal having a frequency above 3 MHz to convey tire data; and

receiving the tire data at a receiving unit located on the vehicle remotely from the tire monitor.

2. The tire characteristic monitoring method of claim 1 further comprising:

receiving the relatively high frequency signal at a radio receiver of the receiving unit;

at the receiving unit, recovering the tire data from the relatively high frequency signal; and

associating the tire data with a position of the tire on the vehicle.

3. The tire characteristic monitoring method of claim 1 further comprising:

receiving the relatively high frequency signal at a radio receiver of the exciter;

at the exciter, recovering the tire data from the relatively high frequency signal;

associating the tire data with a position of the tire on the vehicle; and

conveying the tire data to the receiving unit over a wire line connection between the exciter and the receiving unit.

4. The tire characteristic monitoring method of claim 3 further comprising:

disposing one or more exciters including the exciter adjacent to an assembly line;

conveying a tire including the tire monitor on the assembly line past the exciter of the one or more exciters; and

activating the tire monitor by energizing the secondary coil with the primary coil of the exciter as the tire passes the exciter.

5. The tire characteristic monitoring method of claim 4 further comprising assembling the tire along with other tires on a vehicle prior to conveying the vehicle and the tire past the exciter.

6. The tire characteristic monitoring method of claim 1 wherein the data is indicative of a tire characteristic.

7. A tire characteristic monitoring method comprising acts of:

(a) transmitting an excitation signal including a relatively low frequency signal having a frequency less than 3 MHz from a remote exciter;

(b) at a tire monitor associated with a tire of a vehicle, in response to the excitation signal, communicating data indicative of a tire characteristic to a receiver of the remote exciter using a signal having a frequency different from the relatively low frequency signal;

(c) repeating act (b) for at least one additional tire of the vehicle; and

(d) conveying the data and associated tire identification information from the exciter to a controller mounted on the vehicle, the controller being configured to subsequently provide to a user tire

characteristic information based on the data for each tire of the vehicle.

8. The method of claim 7 further comprising the acts of:

communicating identification information for the tire monitor to the remote exciter; and

associating the identification information with a position of the tire on the vehicle.

9. The method of claim 8 wherein act (d) comprises the act of displaying to the user the tire characteristic information and the associated position of the tire on the vehicle.

10. The method of claim 7 further comprising the acts of positioning the exciter proximate the tire monitor and communicating the data at a relatively low power level to minimize interference.

11. The method of claim 7 further comprising the acts of providing at the exciter a receiver having a relatively low receiver sensitivity and positioning the exciter proximate the tire monitor for reception of the data to minimize interference.

12. A method for operating a remote tire pressure monitoring system, the system including a plurality of tire monitors associated with tires of a vehicle and a controller mounted on the vehicle, the method comprising:

(a) programming at least some tire monitors by

(a1) activating a tire monitor with only a relatively low frequency signal having a frequency below 3 MHz from a remotely located exciter;

(a2) in response to the low frequency signal, transmitting identification information from the tire monitor; and

(a3) associating the identification information with position of a tire associated with the tire monitor on the vehicle;

(b) subsequently, at the tire monitor detecting a tire characteristic of the tire; and

(c) conveying data indicative of the tire characteristic from the tire monitor directly to the controller by communicating a relatively high frequency signal having a frequency above 3 MHz for reception by a receiver of the controller.

13. The method of claim 12 further comprising:

providing a manually positioned remote exciter having a transmit circuit; and

positioning the remote exciter proximate the tire monitor to activate the tire monitor with the relatively low frequency signal produced by the transmit circuit.

14. The method of claim 12 further comprising:

providing a receive circuit at the remote exciter; and

receiving the identification information at the receive circuit;

temporarily electrically coupling the remote exciter to the controller; and

conveying data about the position of the tire on the vehicle and the identification information to the controller from the remote exciter.

15. The method of claim 12 further comprising:

providing a plurality of exciters electrically coupled to the controller, each exciter located on the vehicle near an associated tire monitor; and

selectively actuating exciters of the plurality of exciters to cause a tire monitor associated with an actuated exciter to transmit identification information for the tire monitor.

16. A system for monitoring a tire characteristic of tires of a vehicle with reduced interference and crosstalk, the system comprising:

a plurality of tire monitors, each tire monitor associated with a tire of the vehicle and including a sensor which produces data indicative of a tire characteristic and a transmitter circuit to transmit a relatively high frequency signal in response to an activation signal, the relatively high frequency signal having a frequency greater than 3 MHz;

a controller for providing tire characteristic information to a user, the controller including a receiver circuit configured to receive the relatively high frequency signal; and

a plurality of exciters electrically coupled to the controller, each exciter located on the vehicle near an associated tire monitor, each exciter including a transmission circuit configured to transmit, in response to a control signal from the controller, only a relatively low frequency signal as the activation signal for the associated tire monitor, the relatively low frequency signal having a frequency less than 3 MHz.

17. The system of claim 16 wherein each tire monitor comprises an identifier containing identification information and wherein the transmitter circuit is configured to transmit the identification information in response to the activation signal.

18. The system of claim 17 wherein the receiver circuit of the controller is configured to receive the identification information and provide

the tire characteristic in association with the identification information for each tire monitor of the plurality of tire monitors.

19. A method for determining position of a tire monitor in a remote tire monitoring system with reduced interference and crosstalk, the tire monitor being associated with a tire of a vehicle, the method comprising:

(a) transmitting a radio signal from an exciter to a tire monitor at a first frequency, the first frequency having a frequency less than 3 MHz;

(b) detecting the radio signal at the tire monitor and, in response thereto, transmitting a tire monitor radio signal at a second frequency, the second frequency being different from the first frequency, the second frequency being greater than 3 MHz; and

(c) receiving at a remote location the tire monitor radio signal and position information for the tire monitor and associating the position information and the tire monitor radio signal.

20. The method of claim 19 further comprising:

(d) repeating acts (a) through (c) for all tires of the vehicle.

21. The method of claim 20 wherein the radio signal is transmitted from a single exciter to all tire monitors of the vehicle and further comprising:

moving the single exciter proximate a respective tire monitor prior to transmitting the radio signal; and

maintaining the single exciter proximate the respective tire monitor until after reception of the tire monitor radio signal; and

moving the single exciter proximate a next tire monitor prior to transmitting a next radio signal.

22. The method of claim 20 wherein the radio signal for each respective tire monitor is transmitted from an exciter associated with the respective tire monitor and located on the vehicle proximate the respective tire monitor.

23. The method of claim 19 wherein transmitting a tire monitor radio signal comprises transmitting identification information for the tire monitor with the tire monitor radio signal.

24. The method of claim 23 wherein transmitting a tire monitor radio signal further comprises transmitting information about a tire characteristic of the tire associated with the tire monitor.

25. The method of claim 19 wherein act (c) comprises receiving the tire monitor signal and the position information at the exciter.

26. The method of claim 25 further comprising:

manually entering the position information at the exciter; and

placing the exciter proximate the tire monitor to receive the tire monitor radio signal.